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APPLICATION NO.	FILING DATE	TMAM	FIRST NAMED INVENTOR	M	ATTORNEY DOCKET NO.
08/645,897	03/28/97				

IM71/0116

COPE EXAMINER, B

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ART DM71 PAPER NUMBER

01/16/99

DATE MAILED:

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

<b>Office Action Summary</b>	Application No. <b>08/845,897</b>	Applicant(s) <b>Imam et al.</b>
	Examiner <b>Blaine R. Copenheaver</b>	Group Art Unit <b>1771</b>

Responsive to communication(s) filed on Dec 4, 1998

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

#### Disposition of Claims

Claim(s) 1-22 is/are pending in the application.

Of the above, claim(s) 5, 6, 8-10, and 12-16 is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1-4, 7, 11, and 17-22 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

#### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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1. Claims 5, 6, 8-10, and 12-16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected specie, the requirement having been traversed in Paper No. 4.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 7, 11, 17, 19 and 22 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Jarema et al. (US 3,707,401). Jarema discloses a metal foam, such as an Al or Al-alloy foam, having open cells which is impregnated with an organic material, such as an epoxy. The metal foam can contain cells which are of equal sizes (col. 2, lines 2 and 3). Jarema clearly anticipated the claimed subject matter.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 18 and 21 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jarema et al. '401. With regard to claim 18, Jarema does not specifically disclose a metal foam having a gradation of pore sizes in at least one

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direction along the metal foam. However, all of the Figures, namely Figures 1-3, appear to show this limitation with respect to the thickness direction. Moreover, Jarema discloses that the cells can be of different sizes. This at least suggests the present limitation of the metal foam having a gradation of pore sizes. With regard to claim 21, Jarema does not specifically disclose the thickness of the metal foam being no less than 3 times the average diameter of the cells. However, Figure 2 clearly shows such an embodiment. Alternatively, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized either the thickness of the metal foam or average cell diameter of the metal foam, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. In the present case, it would have been obvious to the skilled artisan to have prepared a thicker metal foam, motivated by the desire to enhance the tensile strength and barrier properties of the metal foam. And, it would have been obvious to the skilled artisan to have prepared a metal foam having a smaller average cell diameter, motivated by the desire to obtain a predetermined decorative impregnated coating on the surface of the foam and/or to have optimized the compressive, flexural, shear and tensile strength of the resulting impregnated foam. Jarema either anticipated or strongly suggested the claimed subject matter.

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jarema et al. '401. Jarema does not specifically disclose a laminate comprising a plurality of sheets according to claim 19. Jarema does disclose laminating additional material onto the impregnated metal foam

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sheet (col. 3, line 37 to col. 4, line 39). This suggests that the impregnated metal foam sheets of Jarema are not limited to monolayer embodiments. While a laminate containing a plurality of impregnated metal foam sheets are not literally disclosed in Jarema, the skilled artisan would have found it obvious to have formed a laminate containing a plurality of like impregnated metal foam sheets, motivated by the desire to further enhance of the properties exhibited by the use of one impregnated metal foam sheet. Moreover, claim 19 does not require that the lamination of a plurality of sheets take place on the top surface (impregnated surface) of the impregnated foam sheet. Thus, this claim reads on laminating a plurality of impregnated foam sheets in a side-by-side relationship. Such a structure would have been obvious to the skilled artisan, motivated by the desire to obtain an impregnated metal foam article having a plurality of regions which slightly differ in properties.

7. The terminal disclaimer filed on December 4, 1998 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Serial No. 08/845,897 has been reviewed and is accepted. The terminal disclaimer has been recorded.

8. Applicant's arguments filed on December 4, 1998 have been fully considered but they are not persuasive. The argument that Jarema does not disclose "impregnation" (as defined on page 669 of *The Random House College Dictionary*, Rev. Edition 1982) of the polymer into the metal foam is not persuasive, because applicant's specification defines the impregnation of the metal foam as including filling or partially filling the open-cells of the metal foam (page 8, lines 12-14). It is clear from Figures 1-3 that Jarema meets this definition. Additionally, it is noted that

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it is well known in the art that Figures 1-3 of Jarema show an impregnated foam. As stated by the applicant in the present response, Jarema discloses that “the foamed metal can be first treated with a resinous material which seeps into the cavities on the surface.” Thus, at the very least, the resulting product is a partially impregnated foam, which reads on the present claims. The argument that Jarema does not disclose an open cell foam is not persuasive, because it is clear from the disclosure and the Figures of Jarema that the foam material of Jarema has open cells which are at least partially filled with the polymer material. By definition an “open-cell” foam is a foam that contains open cells, which Jarema clearly does.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blaine R. Copenheaver whose telephone number is (703) 308-1261. The examiner can normally be reached on Monday-Thursday from 8:30 AM-6:00 PM and on alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Marion E. McCamish, can be reached at (703) 308-3961. The fax numbers for Technology Center 1700 are (703) 305-7718 and (703) 305-3601.



Blaine R. Copenheaver  
Primary Examiner  
Art Unit 1771

B. Copenheaver  
January 10, 1999